

Find the volume of each three dimensional object described below.

1. The solid formed when the region bounded by $y = \sin(x^2)$ and the x -axis for $0 \leq x \leq \sqrt{\pi}$ is rotated about the y -axis
2. The solid formed when the region bounded by the parabola $y = -x^2 + 8x - 15$ and the x -axis is rotated about the line $x = 1$
3. The solid formed when the region bounded by the parabola $y = -x^2 + 8x - 15$ and the x -axis is rotated about the line $x = -2$